CLAIMS

1. A bone graft substitute composition, consisting essentially of:
calcium sulfate;
a mixing solution; and
a plasticizing substance.

2. The composition of claim 1, wherein the calcium sulfate comprises calcium sulfate hemihydrate.

3. The composition of claim 1, wherein the plasticizing substance comprises a cellulose derivative.

4. The composition of claim 1, wherein the plasticizing substance is selected from a group consisting of sodium carboxymethylcellulose, methylcellulose, hydroxypropyl methyl cellulose, hydroxypropyl cellulose, ethylcellulose, hydroxyethylcellulose, and cellulose acetate butyrate.

5. The composition of claim 1, wherein the plasticizing substance comprises hydroxypropyl methyl cellulose.

6. The composition of claim 1, wherein the plasticizing substance comprises hydroxypropyl cellulose.

7. The composition of claim 1, wherein the plasticizing substance comprises hyaluronic acid.

8. The composition of claim 1, wherein the plasticizing substance comprises methylcellulose.

9. The composition of claim 1, wherein the mixing solution is selected from a

group consisting of sterile water, inorganic salt, and cationic surface active agent.

10. The composition of claim 9, wherein the cationic surface active agent is selected from a group consisting of sodium chloride, phosphate buffered saline, potassium chloride, sodium sulfate, ammonium sulfate, ammonium acetate, and sodium acetate.

11. The composition of claim 1, wherein the mixing solution comprises sterile water.

12. The composition of claim 1, wherein the composition does not comprise a polymer matrix.

13. The composition of claim 1, wherein the composition does not comprise bone.

14. The composition of claim 1, consisting essentially of:
100 parts by weight of the calcium sulfate;
about 1.5 to about 8 parts by weight of the plasticizing substance; and
about 25 to about 65 parts by weight of the mixing solution.

15. The composition of claim 1, consisting essentially of:
100 parts of the calcium sulfate;
about 5.25 parts by weight of the plasticizing substance; and
about 33.6 parts by weight of the mixing solution.

16. A bone graft substitute composition, comprising:
calcium sulfate;
demineralized bone matrix;
cancellous bone;
a plasticizing substance; and

a mixing solution.

17. The composition of claim 16, wherein the calcium sulfate comprises calcium sulfate hemihydrate.

18. The composition of claim 16, wherein the plasticizing substance comprises a cellulose derivative.

19. The composition of claim 16, wherein the plasticizing substance is selected from a group consisting of sodium carboxymethylcellulose, methylcellulose, hydroxypropyl methyl cellulose, hydroxypropyl cellulose, ethylcellulose, hydroxyethylcellulose, and cellulose acetate butyrate.

20. The composition of claim 16, wherein the mixing solution is selected from a group consisting of sterile water, inorganic salt, and cationic surface active agent.

21. The composition of claim 20, wherein the cationic surface active agent is selected from a group consisting of sodium chloride, phosphate buffered saline, potassium chloride, sodium sulfate, ammonium sulfate, ammonium acetate, and sodium acetate.

22. The composition of claim 16, wherein the mixing solution comprises sterile water.

23. The composition of claim 16, comprising:

about 80 to about 120 parts by weight of calcium sulfate;

about 10 to about 100 parts by weight of demineralized bone matrix;

about 10 to about 100 parts by weight of cancellous bone;

about 1 to about 40 parts by weight of a plasticizing substance; and

about 21 to about 250 parts by weight of a mixing solution.

24. The composition of claim 16, comprising:
about 90 to about 110 parts by weight of calcium sulfate;
about 10 to about 50 parts by weight of demineralized bone matrix;
about 15 to about 50 parts by weight of cancellous bone;
about 5 to about 20 parts by weight of a plasticizing substance; and
about 80 to about 120 parts by weight of a mixing solution.

25. The composition of claim 16, comprising:
about 98 to about 102 parts by weight of calcium sulfate;
about 13 to about 23 parts by weight of demineralized bone matrix;
about 27 to about 33 parts by weight of cancellous bone;
about 15 to about 20 parts by weight of a plasticizing substance; and
about 95 to about 105 parts by weight of a mixing solution.

26. The composition of claim 16, comprising:
about 100 parts by weight of calcium sulfate;
about 18 to about 19 parts by weight of demineralized bone matrix;
about 27 to about 28 parts by weight of cancellous bone;
about 17 to about 18 parts by weight of a plasticizing substance; and
about 101 to about 102 parts by weight of a mixing solution.

27. A bone graft substitute composition, comprising:
about 80 to about 120 parts by weight of calcium sulfate hemihydrate;
about 10 to about 100 parts by weight of demineralized bone matrix;
about 10 to about 100 parts by weight of cancellous bone;
about 1 to about 40 parts by weight of a carboxymethylcellulose; and
about 21 to about 250 parts by weight of sterile water.

28. The composition of claim 27, comprising:
about 90 to about 110 parts by weight of calcium sulfate hemihydrate;
about 10 to about 50 parts by weight of demineralized bone matrix;

about 15 to about 50 parts by weight of cancellous bone;
about 5 to about 20 parts by weight of carboxymethylcellulose; and
about 80 to about 120 parts by weight of sterile water.

29. The composition of claim 27, comprising:
about 98 to about 102 parts by weight of calcium sulfate hydrate;
about 13 to about 23 parts by weight of demineralized bone matrix;
about 27 to about 33 parts by weight of cancellous bone;
about 15 to about 20 parts by weight of carboxymethylcellulose; and
about 95 to about 105 parts by weight of sterile water.

30. The composition of claim 27, comprising:
about 100 parts by weight of calcium sulfate hemihydrate;
about 18 to about 19 parts by weight of demineralized bone matrix;
about 27 to about 28 parts by weight of cancellous bone;
about 17 to about 18 parts by weight of carboxymethylcellulose; and
about 101 to about 102 parts by weight of sterile water.